



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Am

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/044,749 | 01/10/2002 | Kevin B. Stanton | PW 024 9725 P12817 | 8402 |

7590 06/01/2005

Pillsbury Winthrop LLP
Intellectual Property Group
Suite 2800
725 S. Figueroa Street
Los Angeles, CA 90017-5406

| EXAMINER |
|----------|
|----------|

FLEARY, CAROLYN FATIMAH

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2152

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/044,749

Applicant(s)

STANTON, KEVIN B.

Examiner

Carolyn F. Fleary

Art Unit

2152

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/9/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☒ Other: Non-Compliant Amendment

DETAILED ACTION***Response to Preliminary Amendment***

The amendment to the claims filed on March 9th 2005 does not comply with the requirements of 37 CFR 1.121(c) because all claims being currently amended in an amendment paper were not submitted with markings to indicate the changes that have been made relative to the immediate prior version of the claims. In the instance case, claim 31 has been amended in comparing claim 31 with the immediate prior version of claims filed on May 16th 2002. It appears claim 31 was also amended to correct a dependency issue. Examiner will examine claim 31 as submitted within the amendment submitted on May 9th 2005 with the assumption that applicant will make the appropriate correction ad/or clarification.

Amendments to the claims filed on or after July 30, 2003 must comply with 37 CFR 1.121(c) which states:

(c) *Claims*. Amendments to a claim must be made by rewriting the entire claim with all changes (e.g., additions and deletions) as indicated in this subsection, except when the claim is being canceled. Each amendment document that includes a change to an existing claim, cancellation of an existing claim or addition of a new claim, must include a complete listing of all claims ever presented, including the text of all pending and withdrawn claims, in the application. The claim listing, including the text of the claims, in the amendment document will serve to replace all prior versions of the claims, in the application. In the claim listing, the status of every claim must be indicated after its claim number by using one of the following identifiers in a parenthetical expression: (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

(1) *Claim listing*. All of the claims presented in a claim listing shall be presented in ascending numerical order. Consecutive claims having the same status of "canceled" or "not entered" may be aggregated into one statement (e.g., Claims 1-5 (canceled)). The claim listing shall commence on a separate sheet of the amendment document and the sheet(s) that contain the text of any part of the claims shall not contain any other part of the amendment.

(2) *When claim text with markings is required*. All claims being currently amended in an amendment paper shall be presented in the claim listing, indicate a status of "currently amended," and be submitted with markings to indicate the changes that have been made relative to the immediate prior version of the claims. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-

Art Unit: 2152

through cannot be easily perceived. Only claims having the status of "currently amended," or "withdrawn" if also being amended, shall include markings. If a withdrawn claim is currently amended, its status in the claim listing may be identified as "withdrawn—currently amended."

(3) *When claim text in clean version is required.* The text of all pending claims not being currently amended shall be presented in the claim listing in clean version, *i.e.*, without any markings in the presentation of text. The presentation of a clean version of any claim having the status of "original," "withdrawn" or "previously presented" will constitute an assertion that it has not been changed relative to the immediate prior version, except to omit markings that may have been present in the immediate prior version of the claims of the status of "withdrawn" or "previously presented." Any claim added by amendment must be indicated with the status of "new" and presented in clean version, *i.e.*, without any underlining.

(4) *When claim text shall not be presented; canceling a claim.*

(i) No claim text shall be presented for any claim in the claim listing with the status of "canceled" or "not entered."

(ii) Cancellation of a claim shall be effected by an instruction to cancel a particular claim number. Identifying the status of a claim in the claim listing as "canceled" will constitute an instruction to cancel the claim.

(5) *Reinstatement of previously canceled claim.* A claim which was previously canceled may be reinstated only by adding the claim as a "new" claim with a new claim number.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1,2,4,5,7,8,10,11,13,14, 18, 21, 23, 30 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kayshyp (US 6,438,128).

In regards to claim 1 Kayshyp discloses a remote virtual network interface (500, col. 6 ll.

41-44) comprising:

- an Ethernet receiving (218) element in communication with an Ethernet node (222)(col. 3 ll. 66- col. 4 ll. 29, col. 4 ll. 59-67);

Art Unit: 2152

- an Ethernet transmitting (218) element in communication with the Ethernet node (222) (col. 3 ll. 66- col. 4 ll. 29, col. 4 ll. 59-67);
- an InfiniBand receiving element (210) to receive a data packet from a first InfiniBand node (202), wherein the data packet (300) includes a destination indicator (302 e.g. destination address)(col. 3 ll. 16, col. 5 ll. 5-15, col. 5 ll. 44-45);
- a detector (214) to read the destination indicator (302) and to compare the destination Indicator to a known value(e.g. set of values) (col. 5 ll. 58 – col. 6 ll. 21, col. 6 ll. 35-52); and
- a routing element (214) to deliver the data packet from the InfiniBand receiving (210) element to an InfiniBand transmitting element(232) (col. 3 ll. 29-32), wherein the InfiniBand transmitting element transmits (232,226) the data packet from the first InfiniBand node (202, col. 4 ll. 41-44) to a second InfiniBand node(234,228) (col. 3 ll. 66- col. 4 ll. 29, col. 4 ll. 50-58, col. 5 ll. 2-5 e.g. 232 provides capability to connect to other infiniband networks).

In regards to claim 7, Kayshyp discloses a network system (2), comprising:

- an Ethernet node (222) to receive a first data packet (300)from a remote virtual network interface (col. 4 ll. 59-67, col. 5 ll. 5-15);
- an Ethernet switch(220) to select the Ethernet node(222) to receive a second data packet(300) [col. 4 ll. 59-66]
- a first InfiniBand node (202) to transmit a data packet to the remote virtual network interface (col. 5 ll. 5-15), wherein the data packet(300) includes a destination indicator(302) [col. 3 ll. 16, col. 5 ll. 5-15, col. 5 ll. 44-45]; and

Art Unit: 2152

- an InfiniBand switch(214) to select a second InfiniBand node(234) to receive the data packet from the first InfiniBand node(202), wherein the remote virtual network interface includes:
 - an Ethernet receiving (218) element in communication with the Ethernet node(222),
 - an Ethernet transmitting(218) element in communication with the Ethernet node(222),
 - an InfiniBand receiving element (210) to receive the data packet(300) from the first InfiniBand node(202) [col. 5 ll. 5-15].
 - a detector (214) to read the destination indicator(302) and to compare the destination indicator to a known value(e.g. set of values,) (col. 5 ll. 58 – col. 6 ll. 21, col. 6 ll. 35-52),
 - a routing element(214) to deliver the data packet (300) from the first InfiniBand node (202) to the second InfiniBand node(234), and
 - an InfiniBand transmitting element(232) to transmit (col. 4 ll. 41-44) the data packet (300) from the first InfiniBand node(202) to the second InfiniBand node (234). (col. 3 ll. 66- col. 4 ll. 29, col. 4 ll. 50-58; col. 5 ll. 2-5 e.g. 232 provides capability to connect to other Infiniband networks).

In regards to claim 14 and 23, Kayshyp discloses a method of routing a data packet from a first

InfiniBand node(202) to a second InfiniBand node(234), comprising;

- providing Ethernet connectivity (provide via the Infiniband switch 214) to the first InfiniBand node(202) and to the second InfiniBand node(226,218,232);
- receiving a data packet from the first InfiniBand node wherein the data packet (300) includes a destination indicator(302)

Art Unit: 2152

- reading the destination indicator (col. 5 ll. 58 – col. 6 ll. 21);
- indicating by the destination indicator(302) that the data packet (300) is to be delivered (col. 5 ll. 43-44)to the second InfiniBand node(226,218,232), and
- delivering (col. 5 ll. 43-44) the data packet (300) to the second InfiniBand node (226,218,232).

In regards to claim 2, 8 and 18, Kayshyp discloses, wherein the destination indicator is a destination media access control ("MAC") address (col.⁶ 47-51).

In regards to claim 4 and 10, Kayshyp discloses wherein the detector and the routing element are within a single device (214, col. 5 ll. 58 – col. 6 ll. 21).

In regards to claim 13, Kayshyp discloses the network system(2) according to claim 7, wherein the first data packet(300) and the second data(300) packet are same(col. 4 ll. 59-67, col. 5 ll. 5-15);

In regards to claims 5,11, 21, 30 Kayshyp discloses, wherein the remote virtual network interface is virtualized by implementing microcode in a network processor.

Kayshyp discloses a network processor (202) but is silent on implementing microcode therein. It is apparent, however that microcode (may be defined as permanent memory that holds the elementary circuit operations a computer must perform for each instruction in its instruction set or IEEE definition: A collection of microinstruction) exists and are necessary to permit the operation of the system. Kayshyp discloses a processor coupled to a host fabric (e.g. Infiniband) system memory (208) and memory controller connected to a host adapter channel for permitting communication over an Infiniband network. (See Kayshyp col. 4 ll. 30-58)

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 3,9,15-17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kayshyp (6,438,128) in view of O'Connell et al. (US 6,661,787)

In regards to claim 3, 9, and 20 Kayshyp disclose wherein a set of values (known values) are used to determine an appropriate communication network on which to transmit data packets, wherein data packets may indicate destination a MAC address. (col. 5 ll. 58 – col. 6 ll. 21, col. 6 ll. 44-51)

Kashyap is silent on wherein the known value is a range of media access control address,

However O'Connel et al. discloses known value is a range of media access control address, (local range of MAC Address)

It would be obvious to one of ordinary skill in the art at the time of the invention to modify Kashyap by having known value as a range of MAC address, as taught by O'Connell in order to determine how to route data packets (abs, col. 39-59 col. 4 ll. 66- col. 5 ll. 15, claim 1)

In regards to claim 15, Kayshyp discloses the method according to claim 14, wherein the receiving of the data packet(300) from the first(202) Infiniband node(col. 3 ll. 16, col. 5 ll. 5-15, col. 5 ll. 44-45))is performed by a network virtual interface(500, col. 6 ll. 41-44).

Art Unit: 2152

In regards to claim 16, Kayshyp discloses the method according to claim 14, wherein the reading (col. 5 ll. 58 – col. 6 ll. 21) of the destination in indicator (302) is performed by a detector (214).

In regards to claim 17, Kayshyp discloses the method of claim 14, wherein the delivering (col. 5 ll. 43-44) of the data packet(300) to the second Infiniband node(226,218,232) is performed by a routing element (214).

4. **Claim 6,12, 22 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kayshyp (6,438,128) in view Parthasarathy et al. (US 2002/0191599)**

In regards to claim 6,12,22, and 31, Kayshyp, discloses the remote virtual network interface according to claim 1, wherein the remote virtual network interface is virtualized by implementing microcode (col. 4 ll. 30-58, Also see claim 5 rejection)

Kayshyp is silent the remote virtual network interface is virtualized by implementing microcode in a set of integrated circuits.

Parthasarathy et al. discloses the remote virtual interface (120-160) virtualized by implementing microcode in a set of integrated circuits (e.g. Asic) [0031] [0066] [0068] [0077] [claims 9, 10, 11, 19, 20]

It would be obvious to one of ordinary skill in the art at the time of the invention to modify Kayshyp by implementing microcode in a set of integrated circuits as taught by Parthasarathy et al. for having an efficient multi-tasking pipelined instruction execution system for controlling data transactions in a data network.

Art Unit: 2152

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following prior are not relied upon may also be applied to subject matter pertaining to virtual networks that may be applied to all claims.

- McCullough, Kevin A. (US 20020010866) A Peer-to-peer scalable bandwidth connection formation for computer network, involves scaling bandwidth of superior virtual circuit by establishing additional point-to-point between computer systems and public network. Prior art teaches formation of a virtual connection between nodes wherein said nodes comprise virtual circuit supporting high-speed point-point links. (see entire document)
- Bayer, Gerd Konrad et al. (US 20020099879) Virtualization of I/O adapter resources

The following prior are not relied upon may be applied to claims 5,6, 12,21, 22-31, for instance:

- Latif et al. (US 6400730) Method and apparatus for transferring data between IP network devices and SCSI and fibre channel devices over an IP network. Latif may also be applied to claims 5,11, 21, 30, as prior art explicitly indicates logic within Routing Logic block 350 can be implemented as hard coded logic or as a programmable method using a network processor, which is designed specifically for processing packets and which can be programmed to route either Ethernet and Infiniband frames.
- Lucent (Lucent Technologies, System Chip for Speeding Up Internet Data Flow Across Computer Networks, August 2000, <http://www.agere.com/NEWS/PRESS2000/082200a.html>). In regards to claims 6,12, 22 Lucent may also be applied as it discloses virtualization by implementing microcode in a set of integrated circuits (paragraph 3). Lucent further discloses implementing microcode in a set of integrated circuits in order to make it easier to design the integrated circuits; easier to design into embedded systems; reduce circuit board space and thereby reduces electronics costs; reduce power consumption; and improves control and monitoring (See Lucent – Entire document)
- Georgiu (US 20030067913) Programmable storage network protocol handler architecture. Prior art discloses providing an architecture that achieves high-speed performance in protocol handlers. In regards to claims 23-31 for instance prior art discloses Performance is achieved via hardwired logic at the network interface which handles time critical cyclic redundancy check (CRC) interpretation of some header bits and functions, etc. Multiple processors are used which are interconnected via a high-speed interconnect. Each processor has capability of fully executing programs, and each processor's memory is globally accessible by

Art Unit: 2152

other processors. Each processor has a memory hierarchy, consisting of embedded dynamic random access memory (DRAM) and can include data caches, instruction caches, scratch pad static random access memory (SRAM), or any combination of these memory elements (See [0009]).

The following prior are not relied upon may also be applied to subject matter pertaining to claims 2, 3, 8 9,15-18 and 20 in regards to known values, MAC and range of MAC address.

- Alexander; Thomas (US 6553029) Link aggregation in ethernet frame switches. Prior art teaches a MAC look-up table used for comparing and storing MAC addresses received in packets.
- Mahajan; Umesh et al. (US 6804236, 6785274, 6735201) compares the MAC destination address contained in the packet to predetermined MAC group addresses in order to determine a type of message

The following prior are not relied upon may also be applied to subject matter pertaining to Infiniband Apparatus

- Pettey; Christopher et al. (US 6594712) Infiniband channel adapter for performing direct DMA between PCI bus and InfiniBand link
- Hendel; Ariel (US 6633946) Flexible switch-based I/O system interconnect
- Gasbarro, Dominic J. et al. , Parthasarathy, Balaji et al.. (US 20020184392, 20020071450, 6778548, 20020141424) Host-fabric adapter having bandwidth-optimizing, area-minimal, vertical sliced memory architecture and method of connecting a host system to a channel-based switched fabric in a data network

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carolyn F. Fleary whose telephone number is (571) 5727218. The examiner can normally be reached on 8:30 - 4:00.

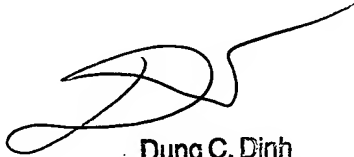
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on (571)272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2152

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Carolyn F Fleary
Examiner
Art Unit 2152

CFF



Dung C. Dinh
Primary Examiner

**Notice of Non-Compliant
Amendment (37 CFR 1.121)**

Application No.

10/044,749

Examiner

Carolyn F. Fleary

Applicant(s)

STANTON, KEVIN B.

Art Unit

2152

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

The amendment document filed on 3/9/2005 is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121. In order for the amendment document to be compliant, correction of the following item(s) is required.

THE FOLLOWING MARKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- ☐ 1. Amendments to the specification:
 - ☐ A. Amended paragraph(s) do not include markings.
 - ☐ B. New paragraph(s) should not be underlined.
 - ☐ C. Other _____.
- ☐ 2. Abstract:
 - ☐ A. Not presented on a separate sheet. 37 CFR 1.72.
 - ☐ B. Other _____.
- ☐ 3. Amendments to the drawings:
 - ☐ A. The drawings are not properly identified in the top margin as "Replacement Sheet," "New Sheet," or "Annotated Sheet" as required by 37 CFR 1.121(d).
 - ☐ B. The practice of submitting proposed drawing correction has been eliminated. Replacement drawings showing amended figures, without markings, in compliance with 37 CFR 1.84 are required.
 - ☐ C. Other _____.
- ☒ 4. Amendments to the claims:
 - ☐ A. A complete listing of all of the claims is not present.
 - ☐ B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
 - ☒ C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following status identifiers: (Original), (Currently amended), (Canceled), (Previously presented), (New), (Not entered), (Withdrawn) and (Withdrawn-currently amended).
 - ☐ D. The claims of this amendment paper have not been presented in ascending numerical order.
 - ☐ E. Other: _____.

For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714 and the USPTO website at <http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/officeflyer.pdf>.

TIME PERIODS FOR FILING A REPLY TO THIS NOTICE:

1. Applicant is given **no new time period** if the non-compliant amendment is an after-final amendment or an amendment filed after allowance. If applicant wishes to resubmit the non-compliant after-final amendment with corrections, the **entire corrected amendment** must be resubmitted within the time period set forth in the final Office action.
2. Applicant is given **one month**, or thirty (30) days, whichever is longer, from the mail date of this notice to supply the **corrected section** of the non-compliant amendment in compliance with 37 CFR 1.121, if the non-compliant amendment is one of the following: a preliminary amendment, a non-final amendment (including a submission for a request for continued examination (RCE) under 37 CFR 1.114), a supplemental amendment filed within a suspension period under 37 CFR 1.103(a) or (c), and an amendment filed in response to a *Quayle* action.

Extensions of time are available under 37 CFR 1.136(a) only if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action.

Failure to timely respond to this notice will result in:

Abandonment of the application if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action; or

Non-entry of the amendment if the non-compliant amendment is a preliminary amendment or supplemental amendment.